
Space Weather Forecast

Issued on Wednesday, 10 January 2024 at 12:13 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Ongoing chance of isolated Moderate flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low solar activity with a number of Common class flares from across the disc. There are eleven sunspot regions, dominated by two clusters. The first in the western/north-western disc consists of a number of moderately sized region showing some limited development. The other cluster consists of two sunspots close together in the southeast, with the southernmost region showing some new spot emergence. A single large region is located toward the east limb, with another region in the southeast which has shown steady development.

Between approximately 09/1400-1600UTC a large double filament (loop of plasma) lift-off was observed in the southeast disc, the westernmost portion of which perhaps giving a slight chance of glancing Earth influence into Day 4 (13 Jan). Other filament lift-offs were observed from toward the northwest limb beginning around 09/2100UTC, and also the southwest limb around 10/0500UTC. CMEs associated with both events look well off the Sun-Earth line, however the latter CME from the southwest has been modelled just to confirm this. No other potential Earth-directed CMEs (coronal mass ejections) were observed in the last 24 hours in available imagery.

Solar Wind / Geomagnetic Activity: Solar winds varied weakly between background and slightly elevated levels. Interplanetary magnetic field (IMF) has been mostly weak but with a some recent brief peaks close to moderate. The north-south component has varied weakly. Geomagnetic activity was Quiet (Kp 0-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) have settled near background.

Four-Day Space Weather Forecast Summary

Solar Activity: There is an ongoing chance of isolated Moderate flares with a slight chance of isolated Strong flares.

Solar Wind / Geomagnetic Activity: There are two potential glancing CME impacts, one from 06 Jan, perhaps bringing a glancing influence early Day 1 (10 Jan), and another from 09 Jan, potentially arriving Day 4 (13 Jan). However these are both low confidence. Otherwise some slight interaction with faster solar wind remains possible Day 1 (10 Jan), but this is likely to have only a very limited impact. Quiet geomagnetic conditions are expected to persist for much of the period, but may rise to Unsettled with a chance of Active in association with any glancing CME influences.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to continue near background. However, there is a slight chance of rising to Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

a minor radiation storm (S1) or greater, should there be any notable flare activity.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	5	1	1	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	No	50	50	50	50
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)